

The identification of *Euplectes* species in non-breeding plumage

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The genus *Euplectes* as currently defined (Hall & Moreau 1970) includes 16 Afrotropical ploceid species of savanna and grasslands. Many have extensive geographical ranges, and five or more species may be found sympatrically at a single locality (cf. Hall & Moreau 1970, Lewis & Pomeroy 1989). Hybrids have been recorded in captivity (Colahan & Craig 1981), but have not been reported from free-living populations to date. In the breeding season male birds have distinctive nuptial plumage, but during the non-breeding season their eclipse plumage may resemble that of females and subadult males very closely, and then they lack obvious species-specific features. This has led to major identification problems, even in the hand; in every museum collection which I have examined, I have found misidentified specimens in eclipse plumage.

While preparing species accounts for a forthcoming volume of *Birds of Africa*, I have examined and measured large series of specimens of all *Euplectes* species, and I also have field experience of eight species from ringing and behavioural studies in southern Africa. In the field, the South African species of *Euplectes* in eclipse plumage can be identified visually with practice, and the flight calls of the species which I know well are distinguishable by ear, and in sonagrams (Craig 1976). This paper is intended to assist in identifying birds in the hand, particularly museum specimens, although some of the characters may also prove useful in the field.

In all *Euplectes* species which have been studied to date, males are polygynous and do not acquire nuptial plumage in the first breeding season after hatching (Craig 1980). Sexual dimorphism in size is most striking in the Longtailed Widow *E. progne* (Craig 1989), and three age and sex categories can often be distinguished on the basis of body size: adult males, subadult males, and females (e.g. Craig & Manson 1981). For several species the age at first breeding is not definitely known, and it may exceed two years. A complete post-juvenile moult appears to be characteristic of this genus, and probably of all African ploceids (Craig 1983). Juvenile birds can be recognised by a general buffy tone to the plumage, but this is retained for only a few months after hatching. Juveniles and subadult males resemble females in plumage, but adult males of some species retain characteristic plumage features in eclipse plumage. This group will be dealt with first.

Key to *Euplectes* males with black remiges in eclipse plumage

1. Coloured epaulet present 2
- No coloured epaulet 6

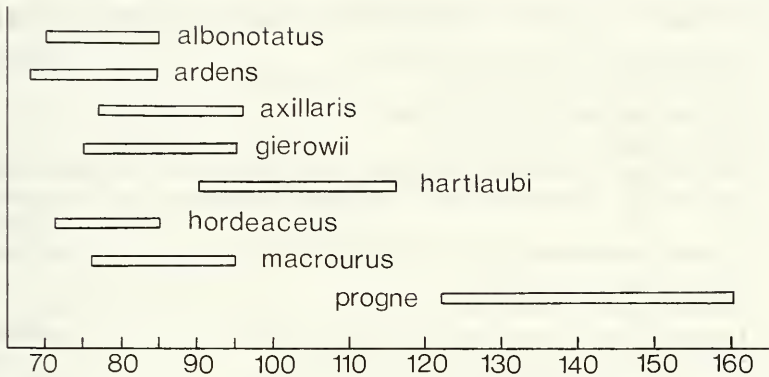


Figure 1. Wing-length ranges (mm) of male *Euplectes* with black primary remiges. Sample sizes are: 72 *albonotatus*; 137 *ardens*; 132 *axillaris*; 57 *gierowii*; 65 *hartlaubi*; 137 *hordeaceus*; 106 *macrourus*; 236 *progne*.

2. Epaulet with yellow feathers 3
- Epaulet with red or orange feathers 5
3. Yellow rump *capensis*
- No yellow rump 4
4. White underwing, white on epaulet *albonotatus*
- Buffy underwing, only yellow on epaulet *macrourus*
- Sooty underwing, yellow and buff epaulet *hartlaubi*
5. Cinnamon brown underwing, rectrices broad and rounded *axillaris*
- Sooty underwing, rectrices narrow and pointed *progne*
6. Rectrices narrow, pointed, undertail coverts dark with whitish margins *ardens*
- Rectrices rounded, undertail coverts plain 7
7. Very dark dorsally, outermost primary long (> 15 mm) . . *gierowii*
- Brown dorsally, outermost primary short (< 10 mm) . . *hordeaceus*

Figure 1 gives an indication of the ranges of wing-length represented by these species. All measurements were taken by me personally on museum specimens, and I have included birds from most geographical areas in these samples, which are intended as a broad guide only. Clearly male *E. progne* are larger than any other species, with *hartlaubi* the next largest and overlapping little with the other species. A full account of geographical variation in size in the different species groups will be published elsewhere.

In all female and subadult birds the bill colour is brown or horn, whereas in breeding males it is black or bluish. For the Red Bishop *E. orix*, and possibly some other species, the change in bill colour can be correlated with testicular development and used as an index of breeding condition (Craig 1975). However, male Red-shouldered Widows *E. axillaris* acquire a blue bill in their first breeding season, and the colour is retained thereafter. Thus birds with black remiges and brown bills are one year old and have undergone their second complete moult, but have not yet bred (Craig & Manson 1981). This sequence may apply to other species also.

Key to *Euplectes* species with brown remiges in eclipse plumage

1. Rump feathers yellowish coloured *capensis*
No coloured region on rump 2
2. Underwing coverts white or pale 3
Underwing coverts not white 4
3. Small yellow or cinnamon epaulet, tawny brown dorsally *albonotatus*
No epaulet, cinnamon patch on chest, cinnamon brown dorsally
. *aureus*
4. Underwing coverts bright cinnamon brown *axillaris*
Underwing coverts sooty 5
Underwing coverts brown or buffy 9
5. Leading edge of wing bright orange-brown *hartlaubi*
Leading edge of wing dark or sooty 6
6. Small epaulet, lesser coverts orange-brown *progne*
No epaulet 7
7. Outermost primary long (> 15 mm) *gierowii*
Outermost primary short (< 10 mm) 8
8. Undertail coverts pointed, with dark central markings, chest lacks
streaks or spots *ardens*
Undertail coverts unmarked, chest with narrow brown streaks on
feathers *hordeaceus*
9. Epaulet pale orange-brown *jacksoni*
Epaulet pale yellow *macrourus*
No epaulet 10
10. Chest with clear band of heavy streaking, broad yellowish
superciliary stripe *afes*
Chest with general streaking, or streaks faint to absent 11
11. Undertail coverts pointed with dark central markings *ardens*
Undertail coverts not pointed, light coloured 12
12. Chest and flanks with streaky markings *orix*
Ventral streaks absent or very restricted 13
13. Primary remiges with yellowish margins *diadematus*
Primary remiges with buff margins 14
14. No ventral streaking *nigroventris*
Faint streaking on chest and flanks *franciscanus*

Figure 2 shows the size ranges of the species in the second key, compiled in the same way as Figure 1. *E. progne* is again the largest species, but there is considerable overlap in size with *E. hartlaubi* and *jacksoni*, and these species may be locally sympatric. In size *E. orix* can overlap with all species except *progne*, but the largest birds occur in the southwestern Cape in South Africa (pers. obs.). In South Africa, male *E. orix* are noticeably more heavily streaked ventrally than females, and this may apply to other species too. Southern birds also tend to be more streaked than northern populations, but *E. orix* always seems to lack buff patches on the chest. The red bishops are similar in general appearance in eclipse plumage, but *E. gierowii* and *hordeaceus* are much heavier-billed than *franciscanus*, *nigroventris* and *orix*. Ventrally *gierowii* is much darker than the other species.

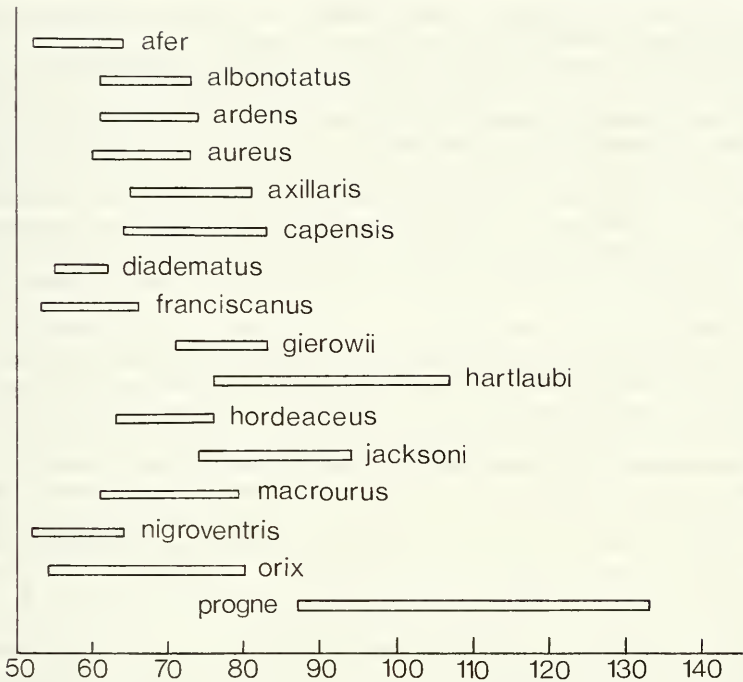


Figure 2. Wing-length ranges (mm) of male and female *Euplectes* with brown primary remiges. Sample sizes are: 99 *afer*; 57 *albonotatus*; 106 *ardens*; 42 *aureus*; 61 *axillaris*; 83 *capensis*; 24 *diadematus*; 144 *franciscanus*; 28 *gierowii*; 69 *hartlaubi*; 97 *hordeaceus*; 94 *jacksoni*; 108 *macrourus*; 81 *nigroventris*; 152 *orix*; 113 *progne*.

The four smallest species, *E. afer*, *diadematus*, *franciscanus* and *nigroventris*, may be sympatric in parts of East Africa. *E. afer* is darkly streaked dorsally, while the superciliary stripe is generally very broad and prominent, extending from the base of the bill to the ear coverts. Both *diadematus* and *nigroventris* have a similar restricted range in the coastal region of Kenya (Lewis & Pomeroy 1989). However, *diadematus* generally has a narrow buff collar across the upper chest, which is absent in *nigroventris*. *E. franciscanus* can occur with *diadematus* in Somalia (Ash & Miskell 1983), and may also have buffy areas on the chest, particularly in birds from Kenya and Uganda. East African birds seem to be little streaked ventrally, while the West African populations are more heavily streaked and resemble *E. orix* more closely.

E. capensis is distinctive, since all races and age classes have both yellow edging to the epaulet feathers and a yellowish patch on the rump; this is the only species with a coloured area on the rump in eclipse plumage. The birds are also heavily streaked ventrally, but in different populations the bill of male birds may be uniform black or black above and white below, and the remiges and rectrices may be brown or black. Hall & Moreau (1970) regard this species as closest to *E. aureus*, in which the dorsal

feathers are broadly edged with cinnamon brown, and a cinnamon patch on the chest contrasts with the pale chin and belly.

Male *E. axillaris* with black remiges resemble *E. progne* in the same plumage, but they are considerably smaller (Fig. 1), and lack pointed rectrices. Brown-plumaged birds always have cinnamon edging to the epaulet feathers and the cinnamon underwing is found only in this species. Within its restricted range, *E. jacksoni* is only likely to be confused with *progne*, but can be separated immediately on underwing colour. *E. hartlaubi* is another species which resembles *progne* in some respects, but apart from the bright edges to the wing, it has a very heavy bill, much deeper than that of *progne* and with a prominent shield on the frons.

E. albonotatus has a whitish underwing and is very pale ventrally. The most similar species is *macrourus*, which also has a yellow epaulet, but it has a brown underwing and is heavier-billed, with dark ventral plumage.

The most widespread species in the genus is *E. ardens*, which is also variable in a number of characters, and it makes up the largest proportion of misidentified specimens which I have found. A sooty underwing is typical of southern birds, but elsewhere the underwing may have brown feathers. The bill is more slender than in similar-sized species, and the worn rectrices may be quite pointed, while the shape and markings of the undertail coverts do seem to be consistent in all populations. In most populations an unstreaked chest with yellowish-buff colouring is a reliable character, but the montane races in East Africa *E. ardens laticaudus* and *E. a. suahelicus* may have a streaky chest (see key). Bowen (1931) noted males of *E. a. suahelicus* in post-nuptial moult growing long rectrices, and it appears from the specimens which I have seen that in this race and *E. a. laticaudus* males retain long rectrices in eclipse plumage. This should be checked in the field.

There have been few attempts to provide keys for the identification of brown-plumaged *Euplectes*. Delacour & Edmond-Blanc (1933) gave a detailed key to males in eclipse plumage and females, and their descriptions are accurate. However, *franciscanus* was not treated as a separate species, and the key uses measurements which will overlap substantially in some populations. Schouteden (1960) provided a key to the *Euplectes* species recorded in Zaire, Rwanda and Burundi. He noted differences in the colour of the underwing coverts, but also made use of measurements which are typical only of the populations in this region of Africa. For West Africa, Dekeyser & Derivot (1966) included ploceids and estrildids in the same key, and in some instances several species are not separated by their key. Similarly the keys in Mackworth-Praed & Grant (1955, 1962, 1973) include weavers, sparrows and waxbills, so that they become very difficult to use, and there are certainly some errors. Belcher (1930) drew up a useful key to the *Euplectes* species in Malawi, and Priest (1936) included it in his book, noting those species which occurred in his region.

In southern Africa, Borrett & Brooke (1970) described the eclipse plumages of *Euplectes* from Zimbabwe briefly, but left the identification problems unresolved. The *Vidua* species which they included in their discussion are readily separated from ploceids by the head pattern; either with a prominent central stripe on the crown, or a uniform brown cap.

Recently Johnson & Horner (1986) have produced a key to seven southern African *Euplectes* species, together with the Red-billed Quelea *Quelea quelea* and the Red-headed Quelea *Q. erythroptus*. These two species can be confused with *Euplectes* species, and are often associated with them in flocks. Further north, the Cardinal Quelea *Q. cardinalis* closely resembles the Red-headed Quelea in the hand (R. Medland, pers. comm.), and in dorsal view these two species are very like the Red Bishop, although the queleas' bill is deeper and more powerful. However, queleas are unstriated ventrally, very faintly streaked on the crown which tends to be greyish or yellowish, with a yellow or orange tinge to the feathers around the base of the bill, and they have greenish-yellow outer margins to the primary remiges.

Johnson & Horner (1986) are the first to have used wing formulas to characterise *Euplectes* species. This system is widely used for identifying passerine birds, but the wing formula cannot be determined accurately for birds with wing moult, or worn primary remiges. I found that members of species-groups such as *E. franciscanus*, *nigroventris* and *orix* cannot be separated satisfactorily on wing formula, and species which are readily separable on this characteristic such as *E. orix* and *afer* are reliably identifiable by other features. I would welcome critical comment on the keys in this paper from ornithologists with field experience in East and West Africa.

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Conclusive evidence for the continuing existence of the Madagascar Serpent-eagle *Eutriorchis astur*

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The Madagascar Serpent-eagle *Eutriorchis astur* is one of the rarest birds of prey in the world. It is known from only eleven museum specimens (Ferguson-Lees *et al.* in press), the last of which were collected between 1928 and 1930 (Dee 1986). There have been several possible sight records in recent decades from Marojejy Reserve, in northeastern Madagascar. A Malagasy forestry official reported four or five sightings of a raptor that may have been the Madagascar Serpent-eagle in Marojejy between 1964 and 1977 (Collar & Stuart 1985). Sheldon & Duckworth (1990) have recently provided a detailed account of their observation of a Madagascar Serpent-eagle, which was made in 1988 in the Marojejy Reserve (14°21'S, 49°38'E) at 850–900 m.

Some uncertainty, however, is always likely to result from sight reports of the Madagascar Serpent-eagle due to its close similarity in size and plumage to the sympatric Henst's Goshawk *Accipiter henstii* (Langrand 1990). The similarity between the two species is so great that three museum specimens of the Madagascar Serpent-eagle were originally misidentified as Henst's Goshawk (Sheldon & Duckworth 1990).

During February and March 1990, the Madagascar Environmental Research Group (MERG) undertook a faunal survey of the Ambatovaky Special Reserve, with an eight member research team of Malagasy and British zoologists. On 23 February 1990, CJR found an almost fully